

**From:** [Tricia Pfeiffer](#)  
**To:** [Roberts, Kris D.](#)  
**Bcc:** [Martin Hestmark](#)  
**Subject:** Schilke analysis  
**Date:** 10/29/2012 12:04 PM  
**Attachments:** [Chapman Marcellus PW EST 2012.pdf](#)  
[Peterman PrPothole.pdf](#)

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I have attached an email from Zell Peterman that discusses the use of Sr isotopes as an indicator for brine contamination. Mr. Peterman recently obtained samples of Bakken water and the lab is in the process of running isotopic analysis--ie getting the geo'fingerprint of the Bakken produced water. Also, from discussions, I have learned that by looking at the Ca/Sr ration you can deduce if the GW system is being recharged by surface water. This additional data could assist with better determining what is occurring on the Schilke property. If you'd like to have a more in depth discussion with Mr. Peterman, I could set it up. Let me know.

Tricia Rios Pfeiffer, Engineer  
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1595 Wynkoop Street  
MC: EP-EPR  
Denver, Colorado 80202

P: 303-312-6271  
P: 866-457-2690 ext 312-6271  
F: 303-312-7206

----- Forwarded by Tricia Pfeiffer/R8/USEPA/US on 10/29/2012 11:54 AM -----

From: Zell E Peterman <peterman@usgs.gov>  
To: Tricia Pfeiffer/R8/USEPA/US@EPA  
Date: 10/25/2012 08:25 AM  
Subject: Reports and Suggestions

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Hi Tricia: Glad you got to come down yesterday We'll be moving into much nicer space in less than a year (Bldg. 95, National Water Quality Lab.)

Here is a Sr isotope/geochemical paper on the Marcellus and a copy of our Prairie Pothole paper which contains the principles of using Sr isotopes as a brine detector. There is another paper by N.R. Warner et al and will see if I can find that electronically. Will send you some thoughts on isotopic studies at Ft Berhold later today.

Zell E. Peterman, PhD, PE (emeritus)  
U.S. Geological Survey  
MS 963 Box 25046 DFC  
Denver CO 80225  
Phone 303-236-7883

Cell 303-324-0458

FAX 303-236-4930



Why is strontium so important to you?

I am asking about the isotopic analyses, but am pretty sure we don't do those.

I am planning on the creek in 2 locations, and the house and barn well. The field well is not at issue as it is not used, and regardless, it is on the same system as the stock dam, and not on the drainage from the Oasis wells. Oh, yes, and the stock dam is dry, and the shallow field well seemed to closely mirror the water level in that dam.

Kris

**From:** Pfeiffer.Tricia@epamail.epa.gov [<mailto:Pfeiffer.Tricia@epamail.epa.gov>]

**Sent:** Monday, October 29, 2012 11:50 AM

**To:** Roberts, Kris D.

**Subject:** Fw: Oasis data

Hey Kris,

Hope you had a relaxing weekend. It was nice here.

We are copying the info for our files and should have it in the mail to you by Friday. I was looking over our list submitted for parameters to test for and we have metals listed. Can you make sure strontium is included? It is part of Method 6020, but I noticed Oasis and NDOH didn't run it in previous samples collected. Does your lab have the ability to do isotopic analysis on Sr, H or O? Also, I was curious, where are you planning to collect samples?

--t

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----- Forwarded by Tricia Pfeiffer/R8/USEPA/US on 10/29/2012 10:42 AM -----

From: "Roberts, Kris D." <[kroberts@nd.gov](mailto:kroberts@nd.gov)>  
To: Tricia Pfeiffer/R8/USEPA/US@EPA  
Date: 10/29/2012 08:33 AM  
Subject: RE: Oasis data

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My address would be Fine. Overnight would be best so we have time to figure out what our lab can and can't do.

Kris Roberts  
Environmental Response Team Leader  
ND Department of Health  
Division of Water Quality  
918 E. Divide Ave, 4th Floor  
Bismack, ND 58501-1947  
701-328-5236 (off.)  
701-391-0982 (cell)  
[kroberts@nd.gov](mailto:kroberts@nd.gov)

**From:** [Pfeiffer.Tricia@epamail.epa.gov](mailto:Pfeiffer.Tricia@epamail.epa.gov) [<mailto:Pfeiffer.Tricia@epamail.epa.gov>]  
**Sent:** Friday, October 26, 2012 4:28 PM  
**To:** Roberts, Kris D.  
**Subject:** RE: Oasis data

Hey Kris,

Martin has spoke with Dave and provided the write up with suggested parameters to test for. What address would you like the data to be mailed to?

--t

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▼ "Roberts, Kris D." ---10/26/2012 10:36:16 AM---Yes, we would like the Oasis report back. Now, I have very limited time to sample the water sources

From: "Roberts, Kris D." <[kroberts@nd.gov](mailto:kroberts@nd.gov)>  
To: Tricia Pfeiffer/R8/USEPA/US@EPA  
Date: 10/26/2012 10:36 AM  
Subject: RE: Oasis data

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Yes, we would like the Oasis report back.

Now, I have very limited time to sample the water sources at Jacki's. Do you have the list of parameters you would like added to our standard lists or not?

I cannot wait any longer before I schedule that trip. I will be leaving for Michigan on the 7<sup>th</sup> or 8<sup>th</sup>, so I have to get this done in the next few days.

Kris

**From:** [Pfeiffer.Tricia@epamail.epa.gov](mailto:Pfeiffer.Tricia@epamail.epa.gov) [<mailto:Pfeiffer.Tricia@epamail.epa.gov>]  
**Sent:** Friday, October 26, 2012 10:39 AM  
**To:** Roberts, Kris D.  
**Subject:** Oasis data

Hey Kris,

I briefed Martin this morning and he will be calling David this morning with our suggestions on moving forward. Would you like me to mail the Oasis data back?

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